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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,538	05/12/2004	Jan Princeton Plummer	6013.0001	3537
48222	7590	09/22/2006	EXAMINER	
KEVIN J. MCNEELY, ESQ. 5335 WISCONSON AVENUE, NW SUITE 440 WASHINGTON, DC 20015			LUKS, JEREMY AUSTIN	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 09/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/709,538	PLUMMER, JAN PRINCETON	
	Examiner	Art Unit	
	Jeremy Luks	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 1 is objected to because of the following informalities: The Examiner recommends that the word “walls” be changed to something like “surfaces”. It is unclear if applicant is claiming a double walled structure within another double walled surface (i.e. six inner walls and six outer walls), or a single walled structure within another single walled surface, where each wall has an inner and outer surface. Based on the figures, it appears applicant’s invention has *single* walled structures having inner and outer *surfaces*. Changing the word “walls” to “surfaces” would overcome the lack of clarity. Further, the last limitation of the claim “wherein a sound wave reflected through the aperture improves the acoustic impedance of the apparatus,” is misleading because the sound waves do not affect the acoustic impedance, it is the structural configuration of the enclosure that affects the acoustical impedance. Through the reflection of the sound wave the acoustical impedance change of the structure can be noticed, but the sound wave itself is only the medium in which the impedance change can be heard. The dimension and design of the enclosure is what defines the acoustical impedance. Appropriate correction is required.
2. Claim 14 is objected to because it includes the limitation “wherein a sound wave reflected through the aperture improves the acoustic impedance of the apparatus,” as objected to in Claim 1 above, and requires the same correction as indicated in the Claim 1 objection above.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1 recites the limitation "the other three walls" in line 7. There is insufficient antecedent basis for this limitation in the claim. Applicant has not established how many walls make up the enclosure, and further applicant has not accounted for any other walls to where it is clear which walls are "the other three walls."

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1, 14 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Velandia (6,144,751) in view of Burward-Hoy (5,452,362). Velandia teaches an enclosure (Figure 8, #8) with six outer walls or surfaces and six inner walls or surfaces connected to form a box structure (20), three of said inner walls or surfaces (walls 22 and back portion surrounding #8) being one of three wave-guides forming an embedded space (portions between 22 and 23, and portion #8); a second enclosure (walls 23 and back portion containing opening #5) disposed within said first enclosure,

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using one of the walls (22 and back portion) of said first enclosure to complete its structure while the other three walls (22 and portion containing opening #5) also form the second of the required wave-guides constructing an embedded space (8 and portions between 22 and 23); at least one opening (opening containing driver #2 near #10) in the wall common to both structures hereinafter called a baffle board to allow mounting of a bi-directional speaker (2), which produces a sound in a first chamber (21); at least one aperture (5) located in at least one interior wall preferably the back of said second enclosure of a proportional diameter or area creating a throat/mouth opening to an embedded acoustic transmission line. Velandia further discloses that it is well known in the art to have a sealed enclosure (Figures 1-4, Col. 6, Lines 45-48), which include a termination member affixed at the end of said embedded space to seal and form the third of the required wave-guides constructing an embedded space, when used in combination with the apparatus of Figure 8 of Velandia. Velandia fails to teach an alternative density transmission medium affixed to at least one of said wave guides covering a majority of its surface. Burward-Hoy teaches an alternative density transmission medium affixed to at least one of said wave guides covering a majority of its surface (Col. 5, Lines 10-27). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Velandia, with the apparatus of Burward-Hoy to passively attenuate sound within the waveguide.

4. Claims 2, 3, 11 and 12 rejected under 35 U.S.C. 103(a) as being unpatentable over Velandia (6,144,751) in view of Burward-Hoy (5,452,362) as applied to claim 1

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above, and further in view of Croft (6,169,811). Velandia and Burward-Hoy are relied upon for the reasons and disclosures set forth above. Velandia and Burward-Hoy fail to teach a port means extending through interior cabinet through a baffle board; and a passive diaphragm means mounted on a baffle board; and a second enclosure placed in front of a driver to provide air mass for acoustic low pass function, a mechanical passive radiator means is used to launch a particular range of low frequencies from the new air volume. Croft teaches a port (Figure 12B, #27) means extending through interior cabinet through a baffle board; and a passive diaphragm (27) means mounted on a baffle board instead of a port (Col. 16, Lines 57-67); and a second enclosure (Figure 7B, #26) placed in front of a loudspeaker (11) to provide air mass for acoustic low pass function, a mechanical passive radiator means (27) is used to launch a particular range of low frequencies from the new air volume (Col. 9, Lines 3-18, 62-64; Col. 10, Lines 56-58). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Velandia as modified, with the apparatus of Croft in order to increase the low frequency output of the speaker cabinet without increasing the size of the speaker.

5. Claims 6, 8, 9 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Velandia (6,144,751) in view of Burward-Hoy (5,452,362) as applied to claim 1 above, and further in view of Croft (6,389,146).

With respect to Claims 6, 8 and 13, Velandia and Burward-Hoy are relied upon for the reasons and disclosures set forth above. Burward-Hoy teaches an alternative density transmission medium affixed to at least one of said wave guides covering a

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majority of its surface (Col. 5, Lines 10-27). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Velandia, with the apparatus of Burward-Hoy to passively attenuate sound within the waveguide. Velandia and Burward-Hoy fail to teach a first and second wave-guide disposed directly in front of and around said loudspeaker so mounted at right angles with said center aperture in said second wave-guide and in a radial relationship with said second wave-guide so as to create a channel expanding from the center in a radial manner, a termination member disposed at the opposite end of the pair of wave-guides disposed to block a wave in the embedded acoustic transmission line to cause a reversal of said wave; a driver of the loudspeaker mounted at said mouth of said embedded acoustic transmission line; and an acoustic low pass filter using an enclosure and a port tube of proper diameter and length; said acoustic low pass filter is an enclosure and a passive radiator diaphragm of proper diameter and. Croft teaches a first and second wave-guide (Figure 6, #10, 51) disposed directly in front of and around a loudspeaker (11) so mounted at right angles with said center aperture in said second wave-guide (51) and in a radial relationship with said second wave-guide (51) so as to create a channel expanding from the center in a radial manner, a termination member disposed at the opposite end of the pair of wave-guides (10, 51) disposed to block a wave in the embedded acoustic transmission line (21) to cause a reversal of said wave; and a loudspeaker driver (11) mounted at a mouth of said embedded acoustic transmission line (21); and an acoustic low pass filter using an enclosure (Figure 5, #10) and a port tube (30) of proper diameter and length; said acoustic low pass filter is an enclosure

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(Figure 7, #10) and a passive radiator diaphragm (30a) of proper diameter and mass (Col. 7, Line 55- Col. 8, Line 24; Col. 9, Lines 41-43). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Velandia as modified with the apparatus of Croft in order to increase the low frequency output of the speaker cabinet without increasing the size of the speaker.

With respect to Claim 9, Velandia, Burward-Hoy and Croft '146 are relied upon for the reasons and disclosures set forth above. Velandia, Burward-Hoy and Croft '146 fail to teach multiple independent embedded acoustic transmission line enclosures each of a dimension appropriate for the driver representing that frequency range; multiple different dynamic transducers each of a different diameter appropriate for that frequency range. However, it would have been an obvious matter of design choice to have transducers each of a different diameter, and enclosures of different dimensions, since such a modification would have involved a mere change in size of a component. A change in size is generally recognized as being within the level of ordinary skill in the art. *In re Rose*, 105 USPQ 237 (CCPA 1955). Further, It would have been obvious to one having ordinary skill in the art at the time the invention was made to have multiple independent embedded acoustic transmission line enclosures and multiple dynamic transducers, since it has been held that a mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8.

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6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Velandia (6,144,751) in view of Burward-Hoy (5,452,362) as applied to claim 1 above, and further in view of Rocha (6,094,495). Velandia and Burward-Hoy are relied upon for the reasons and disclosures set forth above. Velandia and Burward-Hoy fail to teach a horn type expansion diaphragm means is coupled to the louspeaker. Rocha teaches a horn type expansion diaphragm means (Figure 3A, #106) is coupled to a driver (102). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Velandia as modified, with the apparatus of Rocha to increase the propagation of the sound waves from the louspeaker.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Velandia (6,144,751) in view of Burward-Hoy (5,452,362) as applied to claim 1 above, and further in view of Norris (2002/0076069). Velandia and Burward-Hoy are relied upon for the reasons and disclosures set forth above. Velandia and Burward-Hoy fail to teach a planar type of flat panel driver that produces sound waves bi-directionally, comprising an electrostatic type sound panel for any frequency range. Norris teaches a planar type of flat panel driver (Figure 1, #10) that produces sound waves bi-directionally, comprising an electrostatic type teach planar type of flat panel driver that produces sound waves bi-directionally (Page 4, [0042]), comprising an electrostatic type sound panel (Page 2, [0031]) for any frequency range.

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Velandia as modified, with the apparatus of Norris to provide a compact flat speaker that will line up flush with the enclosure and

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eliminate the potential damage to the fragile diaphragm present with conventional moving coil drivers.

8. Claims 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Velandia (6,144,751) in view of Burward-Hoy (5,452,362) and Croft ((6,389,146) as applied to claim 6 above, and further in view of Rocha (6,094,495). Velandia, Burward-Hoy and Croft '146 are relied upon for the reasons and disclosures set forth above. Velandia, Burward-Hoy and Croft '146 fail to teach a compression plug mounted directly in front of the said driver to guide wave and increase pressure on said driver to maintain pressure differential with atmosphere. Rocha teaches a compression plug (Figure 3C, #124, 126) mounted directly in front of the said driver to guide wave and increase pressure on said driver to maintain pressure differential with atmosphere (Col. 4, Lines 44-51). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatus of Velandia as modified, with the apparatus of Rocha to permit higher frequencies to be transmitted by the speaker assembly.

9. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Velandia (6,144,751) in view of Burward-Hoy (5,452,362) as applied to claim 14 above, and further in view of Takahashi (6,013,362). Velandia and Burward-Hoy are relied upon for the reasons and disclosures set forth above. Velandia and Burward-Hoy fail to teach wherein alternate density transmission medium is open cell urethane foam. Takahashi teaches an open celled urethane foam (Col. 2, Lines 23-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the

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apparatuses of Dunning and Croft with the material or Takahashi because of its superior sound absorbing characteristics.

10. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Velandia (6,144,751) in view of Burward-Hoy (5,452,362) and Croft ((6,389,146).) as applied to claim 6 above, and further in view of Takahashi (6,013,362). Velandia, Burward-Hoy and Croft '146 are relied upon for the reasons and disclosures set forth above.

Velandia, Burward-Hoy and Croft '146 fail to teach wherein alternate density transmission medium is open cell urethane foam. Takahashi teaches an open celled urethane foam (Col. 2, Lines 23-30). It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the apparatuses of Dunning and Croft with the material or Takahashi because of its superior sound absorbing characteristics.

Response to Arguments

5. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed.

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Cir. 1992). In this case, the prior art contains the same of Takashi comprises the same open celled urethane foam as Applicant has claimed, but with a different intended use, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Since they are the same kind of foam, Takashi used in combination with Velandia, Burward-Hoy and Croft '146 satisfies the limitations as claimed by applicant.

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pertinent arts of record relating to closed loop embedded audio transmission line technology for loudspeaker enclosures and systems are disclosed in the PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeremy Luks whose telephone number is (571) 272-2707. The examiner can normally be reached on Monday-Thursday 8:30-6:00, and alternating Fridays 8:30-5:00.

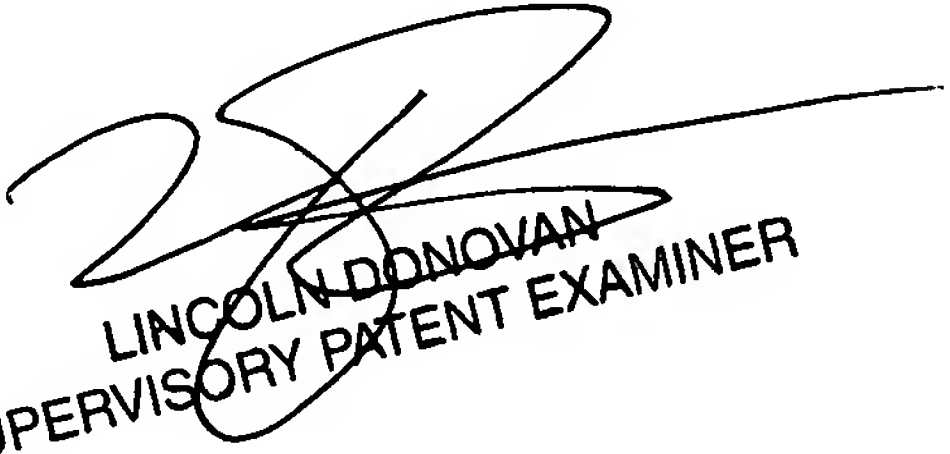
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lincoln Donovan can be reached on (571) 272-1988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeremy Luks
Patent Examiner

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LINCOLN DONOVAN
SUPERVISORY PATENT EXAMINER